

**Commonwealth of Kentucky
Division for Air Quality**

PERMIT STATEMENT OF BASIS

Conditional Major/Synthetic Minor Draft No. F-04-005 (Revision 1)

NACCO MATERIALS HANDLING GROUP INCORPORATED

2200 MENELAUS ROAD, BERE A, KY

November 8, 2004

BRIAN BALLARD, REVIEWER

Plant I.D. # 021-151-00035

A.I.# 2837

CHANGES TO PERMIT (REVISION 1):

On June 25, 2004 the Division issued F-04-005 for NACCO Materials Handling Group, Inc. in Berea, Kentucky. This permit was a renewal of F-98-004. This Revision is in response to NACCO's submittal of an engineering evaluation on September 13, 2004, which provides updated emission information for this source. F-04-005 has requirements for NACCO to conduct EPA Method 5 testing for Emission Points 01, 07, 08, 09, 10 and 11 in order to demonstrate compliance with 401 KAR 59:010. These emission points are paint booths. The requirement for Method 5 testing was based on information submitted with the renewal application for F-98-004. Based on the September 13 engineering evaluation submittal, the Method 5 testing will not be required. The applicator rates used for the renewal application were not accurate. The correct applicator rates have been specified in the engineering evaluation. The Division has determined by mass balance that this source will be in compliance with the mass limit specified by 401 KAR 59:010. The source will demonstrate compliance with 401 KAR 59:010 by adhering to the monitoring and recordkeeping requirements associated with the control equipment for the paint booths.

There were also some administrative corrections to F-04-005. These are listed below:

Emission Unit 01 (pp2 – 4 of F-04-005 (Revision 1))

The Main Line Cure Oven rated capacity is changed from 7.5 to 5.5 MMBTU/HR.

Under description for Flash Tunnels #1 & #2, "Flash Booth equipped with dry filter" is deleted and replaced with "no controls".

Emission Unit 02 (pp5 – 6 of F-04-005 (Revision 1))

The abrasive metal cleaning emission factor is changed from 0.285 lb/ton of shot to 8.0 lb/ton of shot. The control equipment is changed from bag house to cartridge filter.

Emission Unit 03 (pp7 – 8 of F-04-005 (Revision 1))

In Permit #F-04-005, this emission unit was listed as the small parts wash tank burner. In F-04-005 Revision 1, EP21, the Small Parts Powder Coat System, EP20, the Small Parts Powder Coat Dry-Off Oven, and EP24, the Small Parts Powder Coat Cure Oven are listed under this emission unit in addition to EP07, the Small Part Wash Tank Burners. The rated capacity of the Small Part Wash Tank Burner is changed from 3.8 to 5.0 MMBTU/HR. The rated capacity of the Small Parts Powder Coat Dry Off Oven is changed from 3.2 to 3.5 MMBTU/HR and the rated capacity of the Small Parts Powder Coat Cure Oven is changed from 5.0 to 10.0 MMBTU/HR.

Emission Unit 04 (pp9 – 10 of F-04-005 (Revision 1))

This emission unit as listed in F-04-005, did not accurately represent the Powder Coat System Wash Tank Burners. In F-04-005, Revision 1, EP30, the Mast Powder Coat System, EP31, the Mast Powder Coat Dry Off Oven, EP32, the Mast Powder Coat Cure Oven, and EP33, the Mast Powder Coat System Pretreat Wash Tank Burners are listed under this emission unit.

CHANGES TO PERMIT: F-04-005 (REVISION 1) (CONTINUED):

Emission Unit 06 (pp13 – 14 of F-04-005 (Revision 1))

The abrasive metal cleaning emission factor is changed from 0.285 lb/ton of shot to 8.0 lb/ton of shot. The control equipment is changed from bag house to cartridge filter.

Emission Unit 07 (pp15 – 17 of F-04-005 (Revision 1))

The control equipment for the Internal Combustion Lift Truck Paint Booths #1 and #2 is changed from dry filter to dry double filter.

Emission Unit 08 (pp18 – 20 of F-04-005 (Revision 1))

The control equipment for the Electric Lift Truck Paint Booths #1 and #2 is changed from dry filter to dry double filter.

Emission Unit 09 (pp21 – 23 of F-04-005 (Revision 1))

The control equipment for the Counterweight Paint Booth is changed from Downdraft water wash to Double Dry Filters. The Main Frame Touch-Up Booth (formerly EP10 of F-04-005) is now included with this emission unit and the control equipment is changed from dry filter to dry double filter.

Emission Unit 11 (pp24 – 26 of F-04-005 (Revision 1))

The control equipment for the Big Truck Touch-Up Booth is changed from dry filter to dry double filter.

Emission Unit 12 (pp27 – 28 of F-04-005 (Revision 1))

The abrasive metal cleaning emission factor is changed from 0.285 lb/ton of shot to 8.0 lb/ton of shot. The control equipment is changed from bag house to cartridge filter.

Source wide emissions were calculated for F-04-005 (Revision 1) based on information in the September 13, 2004 Engineering Evaluation submittal and addendum to the Engineering Evaluation submitted September 28, 2004. NACCO is a Conditional Major/Synthetic Minor Source for VOC and is a Conditional Major source for HAPS and PM/PM₁₀.

Emissions from painting operations are calculated by a mass balance. A control efficiency of 90% for PM/PM₁₀ is allowed for the water washed venturi of EU1. A control efficiency of 95.62% is allowed for the cartridge type dust collectors used to control PM/PM₁₀ emissions from abrasive metal cleaning operations (EU2, EU6 and EU12). A control efficiency of 95.0% is allowed for the dry double filters used to control PM/PM₁₀ paint over spray emissions (EU7, EU8, EU9 and EU11).

A Toxics Analysis was performed for F-04-005 (Revision 1) using the SCREEN3 model. NACCO was modeled as a point source. The single stack parameters are determined using a weighting method based on the relative emission rates of total toxics from each stack. The area is assumed to be rural based on the land use types within a 3-kilometer radius of the source. Simple flat terrain is assumed for the entire area. The source was modeled at distances from 271 meters to 50 kilometers away from the emission point. The maximum 1-hour concentration occurred at 1,495 meters and was 91.95 µg/m³ based on a 1 gram per second emission rate. The concentrations of individual toxics at this distance were calculated by scaling based on the respective emission rates of each toxic. The concentrations of all toxics were below levels specified in EPA's Integrated Risk Information System (IRIS) database. The information can be referenced at <http://www.epa.gov/ttn/atw/toxsource/table1.pdf> and <http://www.epa.gov/ttn/atw/toxsource/table2.pdf>.

SOURCE DESCRIPTION:

NACCO Materials Handling Group, Inc. located in Berea, KY manufactures forklift trucks. The emissions at this facility are due to metal cleaning using blasting media, painting, and natural gas combustion. The primary emission sources are the Main Line Painting, Wheelabrator Baghouses, Internal Combustion Lift Truck Painting, Electric Lift Truck Painting, Counterweight Painting, Touch-Up Painting, Pangborn PC4 Dust Collector and various Insignificant Activities which include but are not limited to Powder Coat Painting.

MAIN LINE SYSTEM

Metal parts that are painted in the Main Line process are blasted free of rust prior to entering the paint line. The blasting is done in the Main Line Wheelabrator 8 monorail system that is exhausted to a baghouse. The Main Line Painting process configuration is two primer spray booths, a flash tunnel, two topcoat spray booths, a cure oven, then a flash tunnel. All four paint booths employ a water wash system for particulate removal. Paint application is by hand-held GRACO design spray guns. VOC emissions from the flash tunnels are assumed to be carry over as parts move in the system, since no painting occurs there. A Touch-up Painting booth is located at the end of the Main Line system. This touch-up booth is divided into two sections, one for welding and grinding and the other for sanding and painting. This booth utilizes dry filters for particulate control. This booth was installed in December of 1997.

SMALL PARTS SYSTEM POWDER COATING

There are two Powder Coat Painting systems located at the facility. The first system described here is located in approximately the same area that the Small Parts Paint booth was previously. Small parts are cleaned free of rust in the Wheelabrator 96 inch Swing Table System prior to entering the Small Parts Wash Tank. A burner is located in the small parts wash tank. This blasting machine is exhausted to a baghouse. The parts then enter the Small Parts Dry Off Oven. The parts then go to the Powder Coat Paint booths. There are two booths, one for black paint and one for yellow paint. This Powder Coat System was installed in December of 2000.

NEW POWDER COAT SYSTEM

The second Powder Coat Painting System at the facility was installed in June of 2003. A new Pangborn Shot Blast Machine was installed for this system and is used to clean parts that will be painted in this system. The Pangborn Shot Blast Machine is exhausted to a new baghouse that is located adjacent to the Main Line Wheelabrator Baghouse. After leaving the blasting machine, parts pass through an oven and then to a washing system. The washing system contains two wash tank burners. After being washed, the parts pass through a cure oven. The parts then go to the new Powder Coat Paint Booth.

TOUCH-UP PAINTING SYSTEMS

Internal Combustion Lift Truck Painting consists of two spray booths with a common stack. These paint booths are a side draft filter design. The systems are designed for limited finish repair on the internal combustion design lift trucks. Paint application is by hand-held GRACO design spray guns. Particulates are removed using a two-stage dry filter system. The two paint booths are served by a common exhaust system, which utilizes three Chicago Blower 36.5-inch airfoil systems, rated at 18,000 CFM each.

TOUCH-UP PAINTING SYSTEMS (CONTINUED)

Electric Lift Truck Painting consists of two paint booths. These paint booths are a side draft

filter design. The systems are designed for limited finish repair on the electrical drive design lift trucks. Paint application is by hand-held GRACO design spray guns. Particulates are removed using a two-stage dry filter system. The two paint booths are served by individual exhaust systems which use two stacks per booth exhausted with fan systems rated at 12,000 CFM each.

The Big Truck Touch-Up Paint Booth was installed in December, 2000. This booth utilizes dry filters for particulate control. Paint application is by a hand-held air assisted airless spray gun.

COUNTERWEIGHT PAINTING

Counterweights arrive at the NACCO facility from an outside supplier and are already covered with a primer coat, so there are no metal cleaning operations associated with this process. Counterweight Painting starts with a preheat oven which is utilized only during times when the ambient temperature is cold. Parts then go to one paint booth followed by a flash tunnel directly after the paint booth to allow any volatiles to evaporate prior to going to the cure oven. After leaving the flash tunnel the parts go to a preheat oven and then to a cure oven. The counterweight paint booth is a downdraft design and uses a water wash system for particulate control. Paint application is by hand-held GRACO design spray guns. The counterweight system also includes an internal recirculating sanding booth which does not emit and is treated as an insignificant source.

COMMENTS:

Toxics modeling was performed on the NACCO facility using the SCREEN 3 modeling program. The emissions taken into account in the model originate from spray painting operations only. Fugitive emissions from insignificant activities were not included in the model. The results of the toxics modeling indicates that concentration of toxics at the NACCO facility property line is below levels that would indicate risk to the public health.

Compliance demonstration will be required for Emission Points 01, 07, 08, 09, 10 and 11. An EPA Method 5 test shall be performed at Main Line Paint Booth #1, Main Line Paint Booth #3, Internal Combustion Lift Truck Paint Booth #1, Electric Lift Truck Paint Booth #1, Counterweight Paint Booth, Touch-Up Paint Booth, and Big Truck Touch-Up Paint Booth. Mass balance calculations performed for these emission points show that mass emission limit of 2.34 lbs/hour required for these emission points would not be met assuming 90 percent control efficiency. These emission points have been selected for testing considering the type of spray gun and control equipment used at each particular emission point.

APPLICABLE REGULATIONS:

401 KAR 63:060. List of hazardous air pollutants, petition process, lesser quantity designations, and source category list.

401 KAR 63:020 – Potentially Hazardous Matter or Toxic Substances, applies to the potentially hazardous matter and toxic substance emissions from affected facilities.

401 KAR 59:010, Particulate Matter, applies to the particulate matter emissions from affected facilities constructed on or after July 2, 1975.

Conditional Major limits will preclude applicability of 401 KAR 59:225, New miscellaneous parts and products surface coating operations and 40 CFR 63, Subpart Mmmm, Miscellaneous metal parts and products surface coating MACT.

EMISSION AND OPERATING CAPS DESCRIPTION:

NACCO Materials Handling Group, Inc. has requested voluntary permit limits of less than 90.0 tons per year of volatile organic compounds (VOC), 90.0 tons per year of particulate matter (PM/PM₁₀)

9.0 tons per year of individual hazardous air pollutant (HAP) and 22.5 tons per year of combined HAPs.

PERIODIC RECORDKEEPING:

Painting Operations

The permittee shall maintain monthly records of the purchase and usage of the paints and solvents or any VOC/HAP containing material. The permittee shall also maintain monthly records of the ft³ of natural gas burned. VOC/HAP emissions shall be calculated and recorded on a *monthly* basis. These records shall be summarized in tons per month VOC/HAP emissions; subsequently, tons of VOC/HAP emissions per rolling 12-month period shall be recorded. In addition, these records shall demonstrate compliance with VOC/HAP emission limitations listed herein for the conditional major limitations. These records, as well as purchase orders and invoices for all VOC/HAP containing materials, shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the Division upon request.

The permittee shall maintain monthly records of the hours of operation for paint booths. A Method 5 Test shall be performed at one representative paint booth for each Emission Point with paint operations as defined in F-04-005. The Method 5 Test will determine an emission rate of PM/PM₁₀ in pounds per hour. PM/PM₁₀ emissions shall be calculated and recorded on a *monthly* basis. These records shall be summarized in tons per month PM/PM₁₀ emissions; subsequently, tons of PM/PM₁₀ emissions per rolling 12-month period shall be recorded. In addition, these records shall demonstrate compliance with PM/PM₁₀ emission limitations listed herein for the conditional major limitations. These records shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the Division upon request.

The permittee shall perform a qualitative visual observation of the opacity of emissions from the stack on a weekly basis and maintain a log of the observations. If visible emissions from the stack are seen (not including condensed water vapor within the plume), then the opacity shall be determined by Reference Method 9. If emissions are in excess of the applicable opacity limit, then an inspection shall be initiated of control equipment for all necessary repairs.

Metal Cleaning Operations

The permittee shall maintain monthly records of the purchase and usage of blasting media. PM/PM₁₀ emissions shall be calculated and recorded on a *monthly* basis. These records shall be summarized in tons per month PM/PM₁₀ emissions; subsequently, tons of PM/PM₁₀ emissions per rolling 12-month period shall be recorded. In addition, these records shall demonstrate compliance with PM/PM₁₀ emission limitations listed herein for the Conditional Major limitations. These records shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the Division upon request.

Metal Cleaning Operations (Continued)

For blasting operations, the permittee shall maintain a daily log of emission observations from the baghouse. Notification in the daily log shall be made of, but not limited to the following:

- i) Whether any emissions (except for water vapor) were visible from the plant.

- ii) Whether the visible emissions were normal for the process.
- iii) Whether the visible emissions were light or heavy.
- iv) The cause of any abnormal emissions, and any corrective action taken.
- v) Baghouse pressure drop shall be recorded daily.

RESPONSE TO COMMENTS RECEIVED

In response to the relaxation of opacity monitoring for emission points 2, 6, and 12, the Division does not believe that daily opacity monitoring is excessive. As specified in Section B.4. of the permit for emission points 2, 6, and 12, the requirements are "The permittee shall perform a qualitative visual observation of the opacity of emissions from the stack on a daily basis and maintain a log of the observations. If visible emissions from the stack are seen (not including condensed water vapor within the plume), then opacity shall be determined by Reference Method 9. If emissions are in excess of the applicable opacity limit, then an inspection shall be initiated of control equipment for all necessary repairs." It is only necessary to conduct a Method 9 test when there are visible emissions from the stack. An equipment failure in the baghouse, such as rupture of a bag would immediately affect the opacity of emissions from the baghouse. The Division also believes that weekly opacity monitoring for emission points 1, 7, 8, 9, 10 and 11 is not excessive. As stated before, it is only necessary to conduct a Method 9 test when there are visible emissions from the stack.

In response to changing the particulate matter (PM) emission calculation methodology for emission points 1, 7, 8, 9, 10 and 11, the Division agrees that the calculation methodology should be modified. The calculation methodology was modified so that twelve-month rolling average PM emissions will be based on gallons of paint used and not on the hours of operation. During the Method 5 test a pounds per hour PM emission rate will be developed. This number shall be used in conjunction with the gallons per hour paint usage during the test to develop a pound per gallon emission factor for PM. Ultimately this must be translated back into a pounds per hour number however, to ensure compliance with the hourly mass limit in 401 KAR 59:010, Section 4.

OPERATIONAL FLEXIBILITY: NA

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.